

NewsRelease

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RESEARCHERS TO APPLY NASA TECHNOLOGIES TO AVIATION SECURITY

NASA researchers are looking at ways to adapt aviation technologies already being developed to improve aviation security.

The NASA Aviation Safety and Security Program (AvSSP), managed by NASA's Langley Research Center in Hampton, Va., is focusing on areas where NASA expertise could make a significant contribution to security:

- Hardening of aircraft and their systems
- Secure airspace operation technologies
- Improved systems to screen passenger and cargo information
- Sensors designed to better detect threats

"NASA wants to use its decades of aeronautics research know-how to make airliners and their passengers more secure in years to come. We're looking at long-term, futuristic technologies that could be built into next-generation aircraft designs as well as trying to determine how new technologies might be able to be incorporated into current airplanes," said Beth Plentovich, Aviation Security project planning lead at NASA Langley.

Initially much of the effort will center on aircraft and systems hardening. Some of that research will look at an airborne operational concept that would automatically keep airplanes away from national landmarks, security targets and other "protected areas."

NASA demonstrated one concept -- an automatic protected area avoidance system -- using its 757 Airborne Research Integrated Experiments System (ARIES) aircraft in Nov. 2001, about two months after the Sept. 11 terrorist attacks. Engineers integrated two aviation safety technologies that are under development at NASA Langley to create an automatic protected area avoidance system on board the ARIES flying laboratory.

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Researchers adapted "refuse to crash" computer software being developed by the Aviation Safety and Security Program's Single Aircraft Accident Project. They combined it with a 3-D computerized terrain cockpit database created by AvSSP's Synthetic Vision Systems project.

During the demonstration, the 757 flew over NASA's Wallops Flight Facility in Va., but on synthetic vision screens inside the aircraft it looked like the plane was flying approaches into Reagan Washington National Airport. As the plane neared one of four protected areas built into the simulation, a warning dome appeared over the landmark on the experimental Synthetic Vision cockpit display. The dome changed from yellow to red the closer the pilot got to the simulated protected area. If the research pilot didn't steer clear after the red warning was shown during the limited, very controlled flight experiment, the "refuse to crash" system veered the plane away.

"The experiment on board NASA's 757 was just a demonstration of a hypothetical concept. To implement this kind of system in today's airline operations would be very challenging. Much more research is needed, but the test showed that new technology may some day be able to help improve aviation security," added Plentovich.

Other security applications include technology to detect and track unusual air traffic movements. That work is part of the NASA Airspace Systems Program managed from NASA's Ames Research Center at Moffett Field, CA. NASA will also conduct research into the development of a system to report security incidents.

The NASA AvSSP is a partnership with the Federal Aviation Administration, aircraft manufacturers, airlines and the Department of Defense that supports a national goal to try to reduce the fatal aircraft accident rate by 80 percent by 2007.

Researchers at four NASA field installations are working with the FAA and industry to develop advanced, affordable technologies to make flying safer: Langley; Ames; Dryden Flight Research Center in Edwards, Calif.; and Glenn Research Center in Cleveland, Ohio.

For more information on the NASA Aviation Safety and Security Program please check the Internet at:

<http://avsp.larc.nasa.gov>

Interviews, photographs and video are available on request.